

## Various Views of the Electric Current 67

quantity of electricity passing, whatever may be its intensity or its source, and that the same is probably true for all cases (113), even when the utmost generality is taken on the one hand, and great precision of expression on the other (241).

247. In speaking of the current, I find myself obliged to be still more particular than on a former occasion (19), in consequence of the variety of views taken by philosophers, all agreeing in the effect of the current itself. Some philosophers, with Franklin, assume but one electric fluid; and such must agree together in the general uniformity and character of the electric current. Others assume two electric fluids; and here singular differences have arisen.

248. MM. Riffault and Chompre, for instance, consider the positive and negative currents each as causing decomposition, and state that the positive current is *more powerful* than the negative current,<sup>1</sup> the nitrate of soda being, under similar circumstances, decomposed by the former, but not by the latter.

249. M. Hachette states <sup>2</sup> that "it is not necessary, as has been believed, that the action of the two electricities, positive and negative, should be simultaneous for the decomposition of water." The passage implying, if I have caught the meaning aright, that one electricity can be obtained, and can be applied in effecting decompositions, independent of the other.

250. The view of M. de la Rive to a certain extent agrees with that of M. Hachette, for he considers that the two electricities decompose separate portions of water (226).<sup>3</sup>

In one passage he speaks of the two electricities as two influences, wishing perhaps to avoid offering a decided opinion upon the independent existence of electric fluids; but as these influences are considered; as combining with the elements set free as by a species of chemical affinity, and for the time entirely masking their character, great vagueness of idea is thus introduced, inasmuch as such a species of combination can only be conceived to take place between things having independent existences.

The two elementary electric currents, moving in opposite directions, from pole to pole, constitute the ordinary *voltaic current*.

251. M. Grotthuss is inclined to believe that the elements of

water, when about to separate at the poles,  
combine with the  
electricities, and so become gases. M. de la  
Rive's view is the  
exact reverse of this: whilst passing through the  
fluid, they are,

<sup>1</sup> *Annales de Chimie*, 1807, torn. **Lxiii**, p. 84. <sup>2</sup> *Ibid.*

1832, torn. li, p. 73\*

<sup>3</sup> *Ibid.* 1825, torn, xxviii. pp. **197, 201**.